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the plant bears removal very well, being capable of transportation to long distances.

Dr. Britton exhibited a copy of Prof. Conway Macmillan's "Metaspermæ of the Valley of the Minnesota," which he regarded as the most extensive and complete local flora ever produced. It is published by the Geological Survey of the State of Minnesota.

WEDNESDAY EVENING, FEBRUARY 22d.

Vice President Morong in the Chair and seventeen persons present.

The following papers were read:

"A Memorial of Professor John Strong Newberry," by N. L. Britton. The paper was illustrated by specimens of plants named in honor of Prof. Newberry and by a portrait, and is published in this number of the BULLETIN. Remarks were made by Dr. Arthur Mead Edwards, Mr. Lighthipe and the Chairman.

"Notes on some plants of the Yadkin River Valley, N. C.," by John K. Small. The paper was copiously illustrated by specimens and was discussed by Dr. Britton and Dr. Morong.

Index to Recent Literature Relating to American Botany.

Additions to the State (Indiana) Flora from Putnam County. Lucien M. Underwood (Proc. Ind. Acad. Sci. 1891, 89–91).

Eustichia Norvegica is reported from sandstone rocks at Fern, the fourth station in America.

Bread-Fruit Trees in North America. F. H. Knowlton (Science xxi. 24, 25).

The author traces the former existence of the genus *Artocarpus* through the North American continent to Greenland, in cretaceous and tertiary times, as evidenced by remains which are manifestly to be referred to this genus, although classed by different authors at various times under the genera *Myrica* and *Aralia*.

A. H.

Characeæ of America. T. F. Allen (Part II. Fascicle 1, large 8vo., p. 8, 14 plates; published by the author, 10 E. 36th St., New York).

The first part of Dr. Allen's work on our Characeæ was published several years ago. It deals with the morphology, life history and affinities of the group, their classification, and contains a tabular key for the identification of genera and species. This first installment of Part II. deals with eight species of *Nitella*, several of which are new. It is begun by a revised synoptical key to the thirteen species which Dr. Allen now has from America, five of which he has made known. Fourteen plates are issued with the fascicle, eight of them lithographs and six photogravures, made directly from herbarium specimens, and illustrating very well the habit and mode of branching of the plants. N. L. B.

Compositæ—Observations on the—II. Edward L. Greene (Erythea, i. 41–45).

Prof. Greene refers his recently proposed genus *Biolettia* to *Trichocoronis* and discusses *Eupatorium* and its allied genera.

Coniferæ—Notes on West American, I. J. G. Lemmon (Erythea, i. 48–52).

Mr. Lemmon describes his new varieties of *Pseudotsuga taxifolia*; one, var. *suberosa* from Arizona and New Mexico; the other, var. *elongata* from the base of Mt. Hood, Oregon. He also takes issue with Dr. M. T. Masters as to the common name of this tree, maintaining that it should be Douglas Spruce, not Douglas Fir.

Corky Excrescenses on the Stems of Zanthoxylum—The Nature and Development of. C. A. Barber (Annals of Botany, vi. No. 22)

The author first describes the development of the thorn at whose base the corky cushion always originates. The thorn is said to complete its growth during the first summer, growing from a zone of meristematic cells near its base. In the autumn begins the development of the cork-cells, probably from the same meristem which produced the cells of the thorn, though the author does not expressly state this. Yearly deposits of this cork-tissue are made which he compares to the annual rings of *Pinus* stems. As this cushion increases, the tissues near the base of the thorn gradually weaken; finally a rupture occurs by which it is detached, sometimes leaving a slight scar. In regard to the biological significance of this corky growth no explanation is attempted; as to determine this he says a careful study of the plants in their native surroundings is necessary. In some general notes on cork formation in thorns of different plants, several explanations of other authors are given. In conclusion, the author gives a list of plants whose thorns have basal cork formation. This list is taken in part from Gamble's manual of Indian timbers and, in part, from specimens found in museums and botanical gardens.

E. L. G.

Crossing of Cucurbits, L. H. Pammel (Bull. 19, Iowa Exp. Station).

Prof. Pammel records the results of a large number of tests in crossing pumpkin (*Cucurbita Pepo*), squash (*C. maxima*), watermelon (*Citrellus vulgaris*), musk melons (*Cucumis Melo*), and cucumbers (*Cucumis sativus*). While there was great variability in some species as in the pumpkins and squashes, this was due to the seed used and not an immediate effect of crossing. The result of the cross is seen only in the offspring, not in the fruit.

B. D. H.

Cypripedium fasciculatum, var. *pusillum*. (Bot. Mag. t. 7275).

Dr. Hooker refers *C. pusillum* Rolfe, Kew. Bull., 1892, 211, to this species.

Distribution of Tropical Ferns in Peninsular Florida. Lucien M. Underwood. (Proc. Ind. Acad. Sci. 1891, 83–89).

Eclogæ Botanicæ, No. 1. Edward L. Greene. (Proc. Acad. Nat. Sci. Phila. 1892, 357–365; issued Feb. 6, 1893).

This contribution of Prof. Greene is devoted to (1) New or Noteworthy Thistles, in which the conclusion is expressed that all our species should be included in the Linnæan genus *Carduus*, the name *Cnicus* being applicable only to *Centaurea benedicta.* Most of the Eastern species have already been named under *Carduus*; the others are here transferred and ten new ones characterized, which will much facilitate the naming of undetermined material; (2) Three new Perennial Lupines: *Lupinus floribundus* from Colorado, *L. gracilentus* and *L. Covillei* from California. N. L. B.

Economic Fungi.—Fascicle V. Profs. Seymour and Earle. This contribution, embracing numbers 201 to 250, includes thirteen families of plants among the hosts, two of which, the Rosaceæ and Coniferæ are largely represented, the former containing the æcidial and the latter teleutosporic forms of several species of *Gymnosporangium.* The mycologist will be particularly interested in the specimens of *G. Bermudianum* (Farl.) Earle, which strangely has both the æcidial and teleutospore form upon the same galls of the jimpson as found by Mr. Earle in Mississippi. Professor Galloway's new species, *Coleosporium Pini* is included and many other interesting Uredineæ. B. D. H.

Epidendrum spondianum (Bot. Mag. t. 7,273).
Native of Jamaica and Costa Rica.

Epigæa repens (Meehan's Month. iii. 17, 18; colored plate).

Flora of Mt. Orizaba. Henry E. Seaton. (Proc. Ind. Acad. Sci. 1891, 80-92).

Gases in Living Plants. J. C. Arthur. (Amer. Nat. xxvii. 1-8; 98-105).

Glumifloren des nordlichen Ohio. Edo. Classen. (Pharm. Rundsch. xi. 33-34).

A list of 70 Cyperaceæ and 78 Gramineæ from the northern counties of Ohio.

Grasses of Pennsylvania—List of the. Thos. C. Porter. (Leaflet, pp. 4).

A list of 166 species and varieties accompanying the exhibition of the specimens of Pennsylvania Grasses, prepared by Prof. Porter for the State Agricultural Societies exhibit at the Columbian Exposition.

Griselinia—Revision der Gattung. P. Taubert. (Engl. Bot. Jahr. xvi. 386-392).

Description of seven species of this New Zealand and South American genus of Myrtaceæ. We are interested in observing that Dr. Taubert adopts the parenthetical citation of previous authors.

Hardwoods of Oregon—The. Francis E. Lloyd. (Hardwood, iii. 10-11). Notes on fourteen species.

Lathyrus sylvestris. A New Fodder Plant. (Bull. 2, Va. Exp. Station.) The whole bulletin is given to the merits of this plant for fodder.

Malvaceen—Beitrage zur Systematik der. Max Gürke (Engler's Bot. Jahrb. xvi. 330-385).

A new treatment of the genera *Malachra* and *Urena.*

Morphological Notes. S. B. Parish (Erythea, i. 45–47; E. L. Greene, l. c. 52).

Description of lateral flowering in *Agave Americana*, and remarks on the nature of the petiolar glands in *Armeniaca vulgaris*, which, it is suggested, represent the petiolules of reduced leaflets.

Nematophycus Storriei, nov. sp. C. A. Barber (Ann. Bot. vi. 329–338, Pl. XIX. XX).

The plant originally described by Dawson as *Prototaxites*, from the Devonian rocks of Canada, and afterwards studied and renamed by Carruthers as *Nematophycus*, on account of its evident algal affinities, were made the subject of close microscopic examination by the author, in connection with specimens of *Pachytheca*. As a matter of interest it may be here noted that these genera, and *Chara*, are almost the only fossil algæ in which well defined structure is apparent, and the first two were long suspected to be merely parts of the same plants. The specimens of *Nematophycus* upon which the new species is founded, were obtained from the Tymawr quarry at Cardiff, Wales, in rocks of the Wenlock (Upper Silurian) age, associated with remains previously indentified as *Pachytheca*.

In addition to the full description of the new species a description is given, for the purposes of comparison, of *N. Logani* (Daw.) Carruthers, and in the plates both species are made the subjects of numerous studies in longitudinal and transverse sections.

A. H.

Occurrence of Certain Western Plants at Columbus, Ohio. Aug. D. Selby (Proc. Ind. Acad. Sci. 1891, 74–76).

Ornamental and Timber Trees. (Bul. 24, Minn. Exp. Station). This is a large work designed to encourage the growing of desirable plants adapted to the northern conditions. Full lists, in the notes for each sort, are given for deciduous trees, evergreen trees, shrubs, vines and climbing plants, herbaceous plants followed by tables of hardiness.

Palæobotany of the Cretaceous Formation on Staten Island—Additions to the. Arthur Hollick. (Reprint, Trans. N. Y. Acad. Sci. xii. 1–12, Pl. I–IV.) In this contribution the author supplements a previous contribution on the palæontology of the same region, but here giving special attention to the fossil plants. A list of some forty species is given, in which, excluding seeds and fruits of uncertain affinities, there are seven new species described, viz: *Myrica Davisii*, *M. grandifolia*, *Platanus Aquehongensis*, *Kalmia Brittoniana*, *Acer minutus*, *Williamsonia* (?) *Riesii*, and *Phyllites poinsettioides*. All species enumerated are figured in the accompanying plates, and many of them are recognized as identical with the species described and figured by Prof. Heer from the Atane and Patoot beds of Greenland, by Prof. Leo Lesquereux from the Cretaceous of the Western United States, and by Ettingshausen and Velenoosky in Europe. Another important link in the chain of vegetation during Cretaceous times is thus established.

Pammel's Fungus of Texas Root-rot of Cotton—Method of obtaining pure cultures of. Geo. F. Atkinson (Bot. Gaz. xviii. 16–19).

Plant Dispersion by the Buffalo. (Erythea, i. 47, 48).

An anonymous letter is published, its author agreeing with the criticisms of Professor Green on a recent article on this subject.

Plantæ Lehmannianæ in Guatemala, Costa Rica, Columbia, Ecuador etc., collectæ.—Leguminosæ, Marc Micheli. (Engl. Bot. Jahrb. xvi, Heft. 3, Beiblatt, 1–9.)

An annotated list of a large number of species, all previously described.

Portulaceæ—A Rearrangement of American. Thomas Howell (Erythea, i. 29–41).

This valuable paper is in the nature of a synoptical revision of the American species of the order. Its principal feature is the proposal of a new genus, *Oreobroma*, including 10 species taken out of *Lewisia. Claytonia, Talinum* and *Calandrinia*, all acaulescent perennials with scapose stems jointed at the base and fleshy, edible roots.

Mr. Howell also refers a considerable number of the West Coast plants which have hitherto been in *Claytonia* to *Montia*, agreeing in this with the views recently expressed by Prof. Greene. *Calyptridium nudum*, Greene, is referred to *Spraguea*, and *Spraguea multiceps* is a new species. N. L. B.

Prolification und Phyllodie bei Geum rivale. E. Busherer (Ber. Deutsch. Bot. Gesell. x. 571–576; one plate).

Ranunculaceæ—A Comparative Study of the Roots of. Fred. B. Maxwell. (Bot. Gaz. xviii. 8–16; 41–47. Three plates).

Rio de La Plata; Its Basin, Geography and Inhabitants. Thomas Morong. (Bull. Amer. Geograph. Soc. xxiv. 479–509).

Delivered originally as a lecture before the American Geographical Society, and now printed as an article in its Bulletin, accompanied by a map of the region traversed. This is a running account of a trip made by the author up the rivers Plata, Parana and Paraguay in the year 1888, and a sojourn for the two following years at Asuncion, the capital of Paraguay. Brief descriptions are given of Montevideo, Buenos Aires and Asuncion, the manners of their inhabitants, the character of the pampas and campos, and the characteristics of the rivers and the vegetation upon their banks, ending with a short account of the wild tribes of Indians inhabiting the wilderness of the Gran Chaco in Paraguay.

Root-Pressure—An Apparatus for Determining the Periodicity of. M. B. Thomas (Proc. Ind. Acad. Sci. 1891, 82, 83).

Root Rot of Alfalfa. (Bull. 22 Texas Exp. Station).

A new and serious trouble of fungous origin not yet well known on *Medicago sativa.*

Vacation in the Hawaiian Islands. D. H. Campbell. (Bot. Gaz. xvii. 410–416; xviii. 19–25).

Violæ Chilenses.—Ein Beitrag zur Systematik der Gatting Viola. Karl Reiche. (Engl. Bot. Jahrb. xvi. 403–448).

A descriptive list of 46 species of Chilian Violets, several of which are new.